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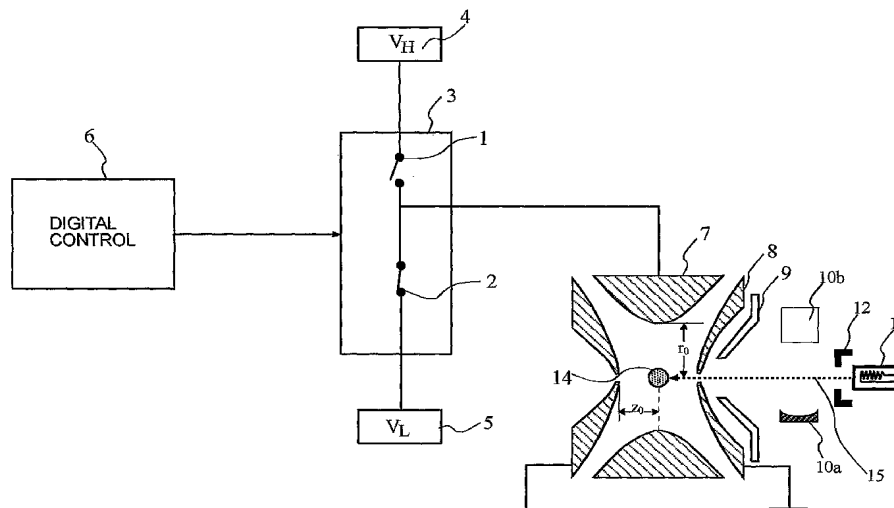
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(54) Title: AN ION TRAP AND A METHOD FOR DISSOCIATING IONS IN AN ION TRAP



(57) Abstract: A quadrupole ion trap includes a switch (3) for switching a trapping voltage between discrete voltage levels  $V_H$ ,  $V_L$ . This creates a digital trapping field for trapping precursor ions and product ions in a trapping region of the ion trap. A gating voltage is applied to a gate electrode (12) to control injection of source electrons into the ion trap. Application of the gating voltage is synchronised with the switching so that electrons are injected into the trapping region while the trapping voltage is at a selected one of the voltage levels and can reach the trapping region with a kinetic energy suitable for electron capture dissociation to take place.